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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/805,357

03/22/2004

Kazuhiro Hattori

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06/02/2006

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EXAMINER

RODRIGUEZ, GLENDA P

ART UNIT

PAPER NUMBER

2627

DATE MAILED: 06/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/805,357

Applicant(s)

HATTORI ET AL.

Examiner

Glenda P. Rodriguez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/10/06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19 is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/20/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Objections

Claims 16-17 are objected to because of the following informalities: they do not distinctively teach that the 0.2 mm is a limitation given to the servo areas. Appropriate correction is required.

The Examiner suggests the following:

Instead of "in each of the servo areas of the magnetic layer, servo pattern unit parts for forming a predetermined servo pattern are separated in a direction vertical to the traveling direction of a write/read head so as to have a length greater than or equal to a track width. but not exceeding 0.2 mm in the direction vertical to the traveling direction of the write/read head.", replace with --and the servo pattern unit parts are separated so as to have a length greater than or equal to a track width, but not exceeding 0.2 mm, in the direction vertical to the traveling direction of the write/read head.--

DETAILED ACTION

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moran et al. (US Patent No. 6, 738, 205) in view of Ikeda et al. (US Patent No. 6, 816, 330).

Regarding Claim 1, Moran et al. teaches a magnetic recording medium comprising a magnetic layer which is sectioned into a plurality of data areas and a plurality of servo areas for information recording,

Wherein in each of the servo areas, the magnetic layer is separated into a plurality of servo pattern unit parts for forming a predetermined servo pattern and a plurality of servo pattern gap filling parts/a servo pattern gap filling part patterned to fill gaps between the plurality of servo pattern unit parts partly (See Fig. 8, wherein it teaches a servo pattern Element 45 and 49 wherein coarse and fine positioning data are therein which has its gaps filled in between these Elements with servo timing information data Element 53. It can be observed that the timing data covers partly the servo pattern parts.

However, Moran et al. does not explicitly teach that the servo patterns are formed in projections, although that is well known in the art because he refers to the servo patterns as “spokes”, which it is known in the art as wedges which protrude from the flat surface of the disk media. Ishida teaches servo patterns projecting as seen in Figs. 2(a)- 2(e) and Col. 2, L. 35-40. It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Moran et al.’s invention with the teaching of Ikeda et al. in order to be able to locate the servo information by detecting these projections as taught in the first paragraph of the Summary of Ikeda et al.

Regarding Claims 2, the combination of Moran et al. and Ikeda et al. teach all the limitations of Claim 1. Moran et al. teach wherein the servo patterns and the gap filling parts consist of projections of the magnetic layer and contain differing sizes (Elements 45 and 49 of

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Fig. 4A-4B in which the servo pattern unit parts or coarse servo pattern and the gap filling parts or fine positioning servo patterns contain differing sizes.).

Regarding Claim 11 and 12, the combination of Moran et al. and Ikeda et al. teach all the limitations of Claims 1 and 2, respectively. Moran et al. further teach wherein the magnetic layer (which is inherent that magnetic data is written in a magnetic layer) is separated into a number of recording elements at fine track pitches in a direction vertical to the traveling direction of a write/read head (See Elements 45 and 49 of Fig. 4A-4B teach coarse and fine positioning servo patterns); and the servo pattern gap filling parts are patterned to lie at least in part near the data areas in the servo area (See Figs. 4A and 4B).

Regarding Claim 13, the combination of Moran et al. and Ikeda et al. teach all the limitations of Claim 1. Moran et al. further teach wherein the servo pattern gap filling parts are formed smaller than the servo pattern unit parts (See Fig. 4A, wherein 45 is smaller than 53).

Regarding Claim 14, the combination of Moran et al. and Ikeda et al. teach all the limitations of Claim 1. Moran et al. further teach wherein the servo pattern unit parts and the servo pattern gap filling parts are magnetized with opposite polarities (Col. 6, L. 1-8).

Regarding Claims 3 and 4, the combination of Moran et al. and Ikeda et al. teach all the limitations of Claim 2. However, Moran et al. does not explicitly teach wherein the servo pattern gap filling parts are formed in different sizes so as to have different coercivities and anisotropies as the magnetic properties. It is obvious to a person of ordinary skill in the art to know that as the size of the pattern, the coercivity and anisotropies varies (e.g. data track with respect to servo track).

3. Claims 5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moran et al. and Ikeda et al. as applied to claims 2 above, and further in view of Fukutani et al. (US Patent No. 6, 852, 431).

Regarding Claim 5, the combination of Moran et al. and Ikeda et al. teach all the limitations of Claim 2. However, the combination does not explicitly teach wherein the different sized patterns have different residual magnetic properties. Fukutani et al. teach this in Col. 5, L. 66 to Col. 6, L. 15. It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Moran et al.'s invention with the teaching of Fukutani et al. in order to vary the coercive force in the magnetic cells as taught by Fukutani et al.

Regarding Claim 15, the combination of Moran et al. and Ikeda et al. teach all the limitations of Claim 3. Moran et al. further teach wherein the servo pattern unit parts and the servo pattern gap filling parts are magnetized with opposite polarities (Col. 6, L. 1-8). However, Moran et al. does not explicitly teach wherein the polarities are vertical to the surface. This limitation is taught by Fukutani et al. in Fig. 7F.

4. Claims 6, 7, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moran et al. and Ikeda et al. in further view of Ogasawara et al. (US Patent No. 6, 466, 387). Moran et al. teaches all the limitations of Claims 1-4, respectively. However, Moran et al. does not explicitly teach wherein the servo pattern filling parts have a value closer to the ratio of the area of the recording elements. This limitation is taught by Ogasawara et al. in Figs. 5 and 6, wherein the servo burst A and the gap filled servo B have the same length as the head element presented. It would have been obvious to a person of ordinary skill in the art, at the time the

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invention was made, to modify Moran et al.'s invention with the teaching of Ogasawara et al. in order to prevent useless space in the disk as cited by Ogasawara et al. in the Abstract.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moran et al., Ikeda et al. and Fukutani et al. as applied to claim 5 above, and further in view of Ogasawara et al. (US Patent No. 6, 466, 387). The combination of Moran et al. Ikeda et al. and Fukutani et al. teach all the limitations of Claims 5. However, the combination does not explicitly teach wherein the servo pattern filling parts have a value closer to the ratio of the area of the recording elements. This limitation is taught by Ogasawara et al. in Figs. 5 and 6, wherein the servo burst A and the gap filled servo B have the same length as the head element presented. It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify the combination's invention with the teaching of Ogasawara et al. in order to prevent useless space in the disk as cited by Ogasawara et al. in the Abstract.

Allowable Subject Matter

6. Claims 19 and 16-17 are allowed.

The reasons for allowance are cited in the previous Office Action.

Response to Arguments

7. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection due to the newly amended Claims.

9. Examiner acknowledges that Claims 18 and 20 have been cancelled.

10. Examiner acknowledges that the Applicant has amended the Objected Claims and are approved by the Examiner.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

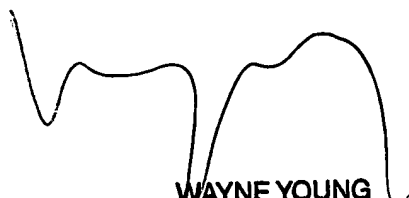
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is (571) 272-7561. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

gpr
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WAYNE YOUNG
SUPERVISORY PATENT EXAMINER